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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/687,048	10/13/2000	Tae Heon Lee	AMKOR-052A	1120
7663	7590	03/22/2006	EXAMINER	
STETINA BRUNDA GARRED & BRUCKER			NGUYEN, DILINH P	
75 ENTERPRISE, SUITE 250			ART UNIT	
ALISO VIEJO, CA 92656			PAPER NUMBER	
			2814	

DATE MAILED: 03/22/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

A

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	09/687,048	LEE ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	DiLinh Nguyen	2814	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 29 December 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 16, 17, 19-26, 28-32 and 34-37 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-17, 19-26, 28-32, 34-37 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                        | 4) <input type="checkbox"/> Interview Summary (PTO-413)                     |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)    | Paper No(s)/Mail Date. _____  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____   | 6) <input type="checkbox"/> Other: _____                                    |

## DETAILED ACTION

### *Drawings*

The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the bottom surfaces of the inner and outer leads of each set which are of the second length and the first length, respectively, are completely exposed in the encapsulation material and arranged to intersect a single straight line extending between the outer leads (claim 16) and the exposed portions of the bottom surfaces of the inner and outer leads of each set being arranged to intersect a single straight line extending between the outer leads (claim 31) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New

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Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 16-17, 19-24, 31-32 and 34-37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Lines 18-19, claim 16, the phrase: "arranged to intersect a single straight line extending between the outer leads" renders the claim indefinite. It is not clear which elements are arranged to intersect?

Lines 13-15, claims 31, the phrase: "the inner and outer leads of each set being arranged to intersect a single straight line extending between the outer leads" renders the claim indefinite. It is not clear where the exposed portions of the bottom surfaces of the inner and outer leads of each set being arranged to intersect?

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

4. Claims 16-17, 19-23, 31-32 and 34-35, in-so-far as clear, are rejected under 35 U.S.C. 102(e) as being anticipated by Minamio et al. (U.S. Pat. 6642609) (previously applied).

- Regarding claims 16 and 31, Minamio et al. disclose a semiconductor package comprising:

a chip paddle 1 (fig. 5) defining opposed top and bottom surfaces and a plurality of sides and corners; and

at least two sets of leads 4 and 5 (fig. 1) extending along respective ones of the sides of the chip paddle in spaced relation thereto, each set of leads including at least two outer leads and at least one inner lead disposed between the outer leads, the inner and outer leads of each set each defining opposed top and bottom surfaces, with at least portion of the bottom surfaces of the outer leads of each set each being of a first length and at least a portion of the bottom surface of the inner lead of each set being of a second length which is unequal to the first length;

a semiconductor chip 12 mounted to the top surface of the chip paddle and electrically connected to at least one of the inner and outer leads; and

an encapsulation material 15 covering the leadframe and the semiconductor chip 12 such that the portions of the bottom surfaces of the inner and outer leads which are of the second length and the first length, respectively, are completely exposed in the encapsulation material (fig. 4, column 5, lines 65 et seq).

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- Regarding claims 17 and 32, Minamio et al. disclose multiple sets of leads which extend along respective ones of each of the sides of the chip paddle 20 in spaced relation thereto (fig. 1).
- Regarding claims 19 and 34, Minamio et al. disclose that the first length of the exposed portion of the bottom surface of each of the outer leads 4 exceeds the second length of the exposed portion of the bottom surface of the inner lead 5 (fig. 1).
- Regarding claims 20 and 35, Minamio et al. disclose that the first length of the exposed portion of the bottom surface of each of the outer leads 5 is less than the second length of the exposed portion of the bottom surface of the inner lead 4 (fig. 1).
- Regarding claim 21, Minamio et al. disclose that wherein at least a portion of the bottom surface of the chip paddle 1 is exposed in the encapsulation material 15 (fig. 5).
- Regarding claim 22, Minamio et al. disclose that the encapsulation material defines a generally planar bottom surface; the exposed portion of the bottom surface of the chip paddle is generally planar and substantially flush with the bottom surface of the encapsulation material; and the exposed portions of the bottom surfaces of the inner and outer leads are each generally planar and substantially flush with the bottom surface of the encapsulation material 15 (figs. 4 and 5).

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- Regarding claim 23, Minamio et al. disclose that one tie bar 3 attached to and extending from at least one of the corners of the chip paddle, the tie bar defining opposed top and bottom surfaces (fig. 1).

***Claim Rejections - 35 USC § 103***

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 24-26, 28-30 and 36-37 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minamio et al. (U.S. Pat. 6642609) (previously applied) in view of Okumura et al. by (U.S. Pat. 5942794) (newly cited).

- Regarding claims 24-25, Minamio et al. substantially disclose all the limitations as claimed above except for at least a portion of the bottom surface of the at least one tie bar is exposed in the encapsulation material and wherein the exposed portions of the bottom surfaces of the outer and inner leads of each set extend to the peripheral edge of the bottom surface.

However, Okumura et al. disclose a semiconductor package comprising a leadframe having at least one tie bar 9 attached to and extending from at least one of the corners of the chip paddle 20, the tie bar 9 defining opposed top and bottom surfaces; wherein at least a portion of the bottom surface of the at least one tie bar is exposed in the encapsulation material 15 and an encapsulation material 15 defines a bottom surface which includes a peripheral edge and the exposed portions of the

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bottom surfaces of the outer and inner leads of each set extend to the peripheral edge of the bottom surface (figs. 5a-5b). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the device structure of Minamio et al. by having at least a portion of the bottom surface of the at least one tie bar is exposed and the lead are extended to the peripheral edge of the bottom surface because as taught by Okumura et al., the exposed bottom surface of the tie bar and the lead are extended to the peripheral edge of the bottom surface would increase a packaging density in mounting semiconductor devices on a mother board (abstract).

- Regarding claim 26, Minamio et al. disclose multiple sets of leads which extend along respective ones of each of the sides of the chip paddle 20 in spaced relation thereto (fig. 1).
- Regarding claim 28, Minamio et al. disclose that the first length of the exposed portion of the bottom surface of each of the outer leads 4 exceeds the second length of the exposed portion of the bottom surface of the inner lead 5 (fig. 1).
- Regarding claim 29, Minamio et al. disclose that the first length of the exposed portion of the bottom surface of each of the outer leads 5 is less than the second length of the exposed portion of the bottom surface of the inner lead 4 (fig. 1).
- Regarding claim 30, Minamio et al. disclose that the encapsulation material 15 defines a generally planar bottom surface; and the bottom surfaces of the inner and outer leads are each generally planar and substantially flush with the bottom surface of the encapsulation material (fig. 5).



- Regarding claims 36-37, Okumura et al. disclose an encapsulation material 15 defines a bottom surface which includes a peripheral edge, and the exposed portions of the bottom surfaces of the outer and inner leads of each set extend to the peripheral edge of the bottom surface (figs. 5a-5b).

### ***Response to Arguments***

- Applicant argues that Minamio et al. fail to disclose the bottom surfaces of the inner and outer leads of each set which are of the second length and the first length, respectively, are completely exposed in the encapsulation material and arranged to intersect a single straight line extending between the outer leads (claim 16) and the exposed portions of the bottom surfaces of the inner and outer leads of each set being arranged to intersect a single straight line extending between the outer leads (claim 31).

The arguments have been fully considered but they are not persuasive because the drawings do not disclose the bottom surfaces of the inner and outer leads of each set which are of the second length and the first length, respectively, *are completely exposed in the encapsulation material and arranged to intersect a single straight line extending between the outer leads (claim 16) and the exposed portions of the bottom surfaces of the inner and outer leads of each set being arranged to intersect a single straight line extending between the outer leads (claim 31).* See above the drawing objections and Claim Rejections - 35 USC § 112 for these newly added limitations in claims 16 and 31.

- Applicant's arguments with respect to claims 25-26 and 28-30 have been

considered but are moot in view of the new ground(s) of rejection. See the above new grounds of rejection.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DiLinh Nguyen whose telephone number is (571) 272-1712. The examiner can normally be reached on 8:00AM - 6:00PM (M-F).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael Fahmy can be reached on (571) 272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

DLN

A handwritten signature in black ink, appearing to read 'Hoai Pham', written in a cursive style.

HOAI PHAM  
PRIMARY EXAMINER